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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,416	12/11/2003	Patrick Reichenauer	MM4404DIV	1160
7590 10/26/2005 ANDERSON KILL & OLICK, P.C. 1251 Avenue of the Americas New York, NY 10020			EXAMINER PALABRICA, RICARDO J	
			ART UNIT 3663	PAPER NUMBER

DATE MAILED: 10/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/734,416	Applicant(s) REICHENAUER, PATRICK	
	Examiner Rick Palabrica	Art Unit 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-24 is/are pending in the application.
- 4a) Of the above claim(s) 24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/763,217.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>12/11/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's 8/11/05 Amendment, which amended the specification and directly amended claim 16, is acknowledged.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 16-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The original claim 1 recites developing the simulated response of the detector by a computer software (see also page 6, lines 4+). The revised claim recites a broad recitation of how a simulated response of the radiation detector is developed, as evidenced by Applicant's deletion of the limitation, "carrying out a computer processing." The new matter pertains to development of the simulated response by means other than by a computer software.

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3. Claims 16-23 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for developing the simulated response of the detector by a computer software, does not reasonably provide enablement for developing said response by means other than by a computer software. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make/use the invention commensurate in scope with these claims.

4. Claims 16-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

There is neither an adequate description nor enabling disclosure as to how and in what manner the simulated response of the detector is developed by means other than by a computer software.

Claim 16 recites the limitation, "using the detection characteristics of the radiation detector and the operating characteristics of the received radiation, to individually reproduce the radiation emitted for the chosen radioelement and mixes of radioelements." Underlining provided. There is neither an adequate description nor enabling disclosure as to what is all is meant by or encompassed by the term, "individually reproduce the radiation emitted." Note that there are a plurality of attributes

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of the radiation emitted by a radionuclide, e.g., type and number of particles emitted, energy spectrum of each particle emitted, half-life, daughter products, etc.

5. Claims 16-23 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. Evidence that the claims fail to correspond in scope with that which applicant(s) regard as the invention can be found in the reply filed on 8/11/05 Amendment. In that paper, Applicant has deleted the limitation of using computer software for developing the simulated response by a computer process, and thereby broadening the claims.

6. The claims are vague, indefinite and incomplete, and its metes and bounds cannot be determined, particularly in regard to the term "individually reproduce the radiation emitted." It is not known what all is meant by or encompassed by this term.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 16-18 and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Ahmed et al. (U.S. 4,822,552) or Schoenig et al. (U.S. 4,902,467) in view of Bronson et al. (U.S. 6,228,664 B1). Either one of Ahmed et al. or

Schoenig et al. disclose the Applicant's claims except for the calibration of the detector by a simulation method.

Ahmed et al. teach a method of inspecting nuclear fuel rods by scanning their gamma radiation emission count to determine enrichment levels and uniformity throughout the fuel rods (e.g., see col. 1, lines 6+). They teach that the rods are scanned using ten NaI scintillators in a linear side-by-side arrangement, with holes through which the rods pass (e.g. see Fig. 13 and col. 7, lines 42+). The detectors detect the 185 keV natural gamma emission in time-shifted intervals (see col. 4, lines 8+). Applicant's claim 17 language, "analyzing the real composition of any of the elements of said set of nuclear fuel elements," reads on Ahmed et al.'s detection and analysis of the 185 keV natural gamma emission.

Schoenig et al. teach a non-destructive testing of nuclear fuel rods to ensure that they have been manufactured in strict accordance with engineering specifications (see col. 1, lines 6+). They teach measuring by a NaI detector the gamma ray emissions resulting from the natural decay of the uranium and associated daughter isotopes in the nuclear fuel pellets (e.g., see Fig. 1 and col. 6, lines 30+). +). Applicant's claim 17 language, "analyzing the real composition of any of the elements of said set of nuclear fuel elements," reads on Schoenig et al.'s detection and analysis of the gamma emissions from the uranium and its daughter isotopes.

It is a notorious scientific fact that the detectors in either Ahmed et al. or Schoenig et al. must inherently be calibrated prior to their use in the inspection/testing

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of fuel rods in order to ensure valid and accurate results. No specifics are provided on how the detector calibration is performed.

Bronson et al. teach a method of calibrating detectors, such as NaI, that does not use radioactive sources, i.e., by simulation. They teach that their method is quick and does not generate radioactive waste (see col. 16, lines 35+ and claim 2). They further cite a plurality of other mathematical simulations (e.g., by Monte Carlo techniques) to calibrate detector systems, as a replacement to the traditional method of calibration by radioactive sources (e.g., see cols. 1-3). Thus, Applicant's claimed method of simulating detector response by simulation is old and well known.

As to claim 16, Bronson et al. meet the limitations regarding development of a simulated detector response as follows:

- Memorizing the radioactive emission spectra, determining operating characteristics of the received radiation, and choosing radioelements – see col. 5, lines 35-63.
- Determining detection characteristics, including thickness through which the radiation passes – see paragraph bridging cols. 4 and 5, and col. 5, lines 10-34.

As to claim 17 and the limitation,

- Calibrating the detector and correcting the simulated response using the detector response – see col. 6, lines 21-57.

As to claim 21 and the limitation,

- Data representative of thickness through which radiation passes before detection – see col. 5, item 5 and col. 6, item 6.

As to claim 22 and the limitation

- Operative angle, energy bands and electronic amplification characteristics of the detector – see col. 5, item 3.

As to claim 23 and the limitation on regression lines, this reads on the computation of detector efficiency and using the calibrated detector to measure radioactivity of the radioactive object – see claim 1.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method, as disclosed by either one of Ahmed et al. or Schoenig et al., by the teaching of Bronson et al., to use a simulated detector response for the calibration of the detector, to gain the advantages thereof (i.e., faster and no radioactive waste generated), because such modification is no more than the use of well known expedients for calibration within the nuclear art.

8. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmed et al. in view of Bronson et al. Ahmed et al. disclose the Applicant's claims except for the calibration of the detector by a simulation method.

Ahmed et al. teach an annular scintillation detector (e.g., see Fig. 13). Bronson et al. has been discussed earlier.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method, as disclosed by Ahmed et al., by the teaching of Bronson et al., to use a simulated detector response for the calibration

of the detector, to gain the advantages thereof (i.e., faster and no radioactive waste generated), because such modification is no more than the use of well known expedients for calibration within the nuclear art.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References C, D, F and G further illustrate prior art.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 571-272-6880. The examiner can normally be reached on 6:30-5:00, Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RJP
October 24, 2005

Handwritten signature of R. Palabrica in cursive script.